

REMARKS

In accordance with the foregoing, claims 1, 11 and 14 have been amended, and claims 9 and 10 have been cancelled without prejudice or disclaimer. Claims 1-8, 11, 12 and 14-24 are pending and under consideration. No new matter is presented in this Amendment.

REJECTIONS UNDER 35 U.S.C. §103:

On pages 2-6 of the Office Action, the Examiner rejects claims 1-10, 12, 16, 18, 20 and 21 under 35 U.S.C. §103(a) in view of Ohno et al. (U.S. Patent No. 5,150,351) and Ichihara (U.S. Patent No. 6,396,792). The rejection is respectfully traversed and reconsideration is requested.

As a point of clarification, claims 9 and 10 have been cancelled without prejudice or disclaimer. As such, it is respectfully submitted that the rejection is moot.

By way of review, Ohno et al. suggests a pulse spacing period having narrow signals which alternate between a playback power level P_r and an erase power level P_b according to 1 and 0 states of a signal as shown in FIG. 4(a). (Col. 6, lines 4-51; Figs. 4A through 5(d)). Even assuming arguendo the beginning pulse and ending pulse within the 0 state are at a P_r level when the signal of FIG. 4(a) increases from 0 to 1, the pulse increases from the P_r level while at 0 to a P_p level at 1. There is further no suggestion that another power level exists between the 0 and 1 states of the signal in FIG. 4(a), or that the power level of such a pulse should be or is at the P_r level as opposed to the P_p level.

In order to cure this deficiency, the Examiner relies upon col. 6, line 62 to col. 7, line 1 of Ichihara to teach that the power level of a period corresponding to the recited period of claim 10 may be changed from P_{c1} to P_a . However, the relied upon passage in Ichihara is drawn to the power levels of the recording waveform: the first recording pulse P_a and the last off pulse of the recording waveform, which is shown as P_{c2} . Specifically, while the passage relates to the growth of crystals, Ichihara teaches that crystalline growth is desired for the space preceding the amorphous mark. There is no suggestion in Ichihara that the same adjustment should be applied to other pulses between the recording and erase waveforms since the problem being solved in Ichihara relates to failure to erase problems shown in FIG. 1E. (Col. 8, lines 7-20 of Ichihara). There is also no suggestion to even use the delay, which is merely shown at power level P_c without describing any advantages to its use.

Moreover, Ichihara teaches away from using a low power lead pulse, such as that described in Ohno et al., such that one skilled in the art would not maintain the low power lead

pulse described in Ohno et al. in view of the teachings of Ichihara. Specifically, as is evident from FIGs. 3 and 4 as explained in cols. 8 - 9, the use of the multiple pulses is performed in order to more accurately form erasures and marks. When initiating an erasure, Ichihara suggests alternating between high and low pulses Pc1, Pc2 in order to promote crystallization growth and nuclei formation. The pulse power levels are due to the different temperatures at which crystals grow and nuclei are generated as shown in FIG. 3. By starting off with a high pulse Pc1 during the initial period Tc1 as shown in FIG. 4, nuclei are formed and then grown. Moreover, this pattern is consistent with the desired temperature profile C shown in FIG. 4, which requires the higher temperature at the beginning of the pattern in order to start the erasure pattern and a lower temperature at the end of the pattern in order to ensure that the erasure pattern ends prior to the next mark. As set forth in col. 9, lines 25-31, this pattern as shown in FIG. 1B is used in order "to ensure the effects of the present invention," which is also the purpose set forth in col. 1, lines 1-7 in relation to generating the growth of crystal nuclei of the space.

Ichihara does not suggest that the last pulse be at a high power level Pc1, which would appear to extend the erasure pattern into the adjacent mark, and does not suggest that the first pulse be at a low level Pc2, which would delay erasure. Specifically, Ichihara does not suggest another pattern (regardless of power level) in which the first erasure pulse is anything other than a high power level since the high power level ensures that the temperature level in period Tc1 is within the high crystalline nuclei growth frequency needed to ensure that the fail to erase problems are resolved. Thus, any such combination would appear to teach against using the low level lead pulse shown in Ohno et al., and would further teach against the use of a power level that is less than the high power level Pc1 in order to achieve the goal set forth in col. 1, lines 1-7. In view of the evidence of record, one skilled in the art would have, in view of Ichihara, been motivated to adjust the first pulse to be the high pulse as opposed to the shown low pulse such that the combination does not suggest using the low level lead pulse for the erase pattern, and/or to not adjust a level of a period between the erase and recording patterns to be a high power pulse of the erase pattern.

Therefore, it is respectfully submitted that there is insufficient evidence of a motivation to make the combination in a manner which suggests the features of claim 1 as is required to maintain a prima facie obviousness rejection under 35 U.S.C. §103, and that the combination further does not disclose the features of claim 1.

Additionally, while applicants do not necessarily agree with the Examiner's interpretation

of Ichihara and/or Ohno et al. or that the combination is otherwise supportable under the standards of 35 U.S.C. §103, claim 1 has been amended to further recite "a cooling pulse connecting another first multi-pulse preceding the second multi-pulse and which extends from a trailing one of the pulses of the another first multi-pulse to a leading one of the pulses of the second multi-pulse, the cooling pulse forming a portion of the first pulses of the another first multi-pulse and a portion of the second pulses." In contrast, neither Ichihara nor Ohno et al. disclose such an addition pulse which also forms a portion of both the first and second pulses. Instead, while Ohno et al. shows, in FIGs. 4(a) and 4(b), a last pulse Pp of a high level 11T mark adjacent to a first pulse Pr of a next low level 6T space. As seen by the dotted line demarking a boundary between the high level 11T mark and the low level 6T space, neither the last pulse Pp nor the first pulse Pr extend across the boundary. There is no suggestion that another pulse extends or is common to the last pulse Pp and the first pulse Pr. As such, it is further respectfully submitted that the combination does not disclose or suggest the features of claim 1.

Claims 2-8, 12, 16, 18, 20, and 21 are deemed patentable due at least to their depending from claim 1.

On page 7 of the Office Action, the Examiner rejects claim 17 under 35 U.S.C §103(a) in view of Ohno et al., Ichihara, and Ushiyama et al. (U.S. Patent Publication No. 2002/0176338). The rejection is respectfully traversed and reconsideration is requested.

The Examiner does not rely on Ushiyama et al. to cure the above noted deficiencies of the combination of Ichihara and Ohno et al. as applied to claim 1. As such, it is respectfully submitted that claim 17, which depends from claim 1, is deemed patentable over the combination.

On pages 8-9 of the Office Action, the Examiner rejects claims 19 and 22 under 35 U.S.C §103(a) in view of Ohno et al., Ichihara, and Iida et al. (U.S. Patent Publication No. 2002/0027848). The rejection is respectfully traversed and reconsideration is requested.

The Examiner does not rely on Iida et al. to cure the above noted deficiencies of the combination of Ichihara and Ohno et al. as applied to claim 1. As such, it is respectfully submitted that claims 19 and 22, which depend from claim 1, are deemed patentable over the combination.

On page 9 of the Office Action, the Examiner rejects claims 23 and 24 under 35 U.S.C §103(a) in view of Ohno et al., Ichihara, and Ando (U.S. Patent No. 6,088,315). The rejection is respectfully traversed and reconsideration is requested.

The Examiner does not rely on Ando to cure the above noted deficiencies of the combination of Ichihara and Ohno et al. as applied to claim 1. As such, it is respectfully submitted that claims 23 and 24, which depend from claim 1, are deemed patentable over the combination.

ALLOWABLE SUBJECT MATTER:

On page 10 of the Office Action, the Examiner objects to claims 11, 14 and 15 as being dependent upon a rejected base claim.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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